

1. Relevant documents

- D1: DE 38 16 310 A (BBC BROWN BOVERI & CIE) 12 January 1989 (1989-01-12)  
D2: US-A-3 573 963 (MAXWELL DOUGLAS H) 6 April 1971 (1971-04-06)  
D3: US-A-5 549 767 (KURPASKA S MICHAEL ET AL) 27 August 1996 (1996-08-27)  
D4: EP-A-1 258 312 (UNITED TECHNOLOGIES CORP) 20 November 2002 (2002-11-20)  
D5: PATENT ABSTRACTS OF JAPAN Vol. 2002, No. 02, 2 April 2002 (2002-04-02) & JP 2001 288554 A (TOSHIBA CORP), 19 October 2001 (2001-10-19)

2. Novelty, PCT Art. 33(2) and inventive step, PCT Art. 33(3)

- 2.1 Claim 1 claims a process for producing a multilayer system in which, for example, an interlayer (22) acts as a diffusion barrier between a first multicomponent material (13) and a coating (7). Neither the first multicomponent material (13) nor the coating are defined.
- 2.2 Layer systems in accordance with the preamble of claim 1 are known, for example, from D3 and/or D4. The subject matter of claim 1 differs from the disclosure of documents D3 or D4 by virtue of the fact that an interlayer (22) is not disclosed in either D3 or D4.

Therefore, the problem addressed with regard to D3 or D4 is to be regarded as that of preventing any diffusion of an undesirable component from one layer to the next. In claim 1 of the application, this problem is solved by an interlayer (22) which for example acts as a diffusion barrier. This solution cannot be considered inventive for the following reasons.

- 2.3 D1 and D2 disclose multilayer systems in which diffusion out of one layer to the next is prevented by a diffusion barrier (cf. Figs. 3 and 4 of D1 and Fig. 2 of D2). If a person skilled in the art wanted to prevent the diffusion of an undesirable component, he would therefore immediately think of a diffusion

- barrier, as disclosed in D1 and D2. Therefore, the process claimed in claim 1 is not inventive.
- 2.4 The combination of features which results from claims 1, 3 and 4 is neither known from nor rendered obvious by the available prior art.
- 2.5 The problem with diffusion in a system in which:
- a). the substrate is a superalloy (claim 9); and
  - b). the first multicomponent material (13) is a solder which as undesirable component includes at least one agent for reducing the melting point (e.g. boron) (claim 5); and
  - c). the coating (7) is an MCrAlX alloy (claim 10);
- 2.6 Therefore, it is proposed that a new independent claim be drafted which includes the features proposed in points 2.4 or 2.5.
- 2.7 Claim 15 relates to a component without specifying specific product features. D3 and D4 disclose a component which has been produced in accordance with the preamble of claim 1. The solder contains 0.8% boron in D3 (cf. column 4:29) and 0.5% boron in D4.

The component in accordance with the claim of the application need not have an interlayer (22) (cf. claim 4 and Figure 5), and the "first material (13), at least in the vicinity of the surface (19), need not (contain) **scarcely any** undesirable components (boron)" cf. page 5, lines 35-36). In this case, it is impossible to recognize any difference between "scarcely any boron" and the indication of 0.5% or 0.8% boron in D3 and D4.

The dependent claims 16-21 also do not contain any additional novel or inventive features.

3. Applicability, PCT Art. 33(4)

The product and the process of claims 1 to 21 are industrially applicable.